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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/039,218	01/03/2002	Jon R. Lesniak	STREPHO-18	2015

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EXAMINER

PRITCHETT, JOSHUA L

ART UNIT PAPER NUMBER

2872

DATE MAILED: 04/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/039,218

Applicant(s)

LESNIAK, JON R.

Examiner

Joshua L Pritchett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 8-16 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharp (US 5,528,393) in view of Le Floch (US 4,305,046).

Regarding claims 1, 11 and 14, Sharp teaches an achromatic polarizer (col. 16 line 34) comprising a linear polarizer (col. 16 line 7) a $\frac{1}{2}$ wave plate for a selected wavelength of light (col. 16 lines 10-13, 35-36), the $\frac{1}{2}$ wave plate receiving light from the linear polarizer (col. 16 lines 10-13), a partial polarizer (col. 16 lines 8-9, col. 15 lines 39-41) receiving light from the $\frac{1}{2}$ wave plate (col. 16 lines 10-13). Sharp lacks specific reference to the inclusion of a $\frac{1}{4}$ wave plate to receive light from the partial polarizer. Sharp does teach that to create a circular polarizer one must combine a linear polarizer and a $\frac{1}{4}$ wave plate (col. 15 lines 43-47). Le Floch teaches a partial polarizer (6) followed by a quarter wave plate (8) as a means for creating circular polarization of light (Fig. 1, col. 3 lines 67-68). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a quarter wave plate after the

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partial polarizer as taught by Le Floch in the Sharp invention for the purpose of creating a circular polarizer instead of a linear polarizer.

Regarding claim 2, Sharp teaches the selected wavelength of light is chosen to occupy a middle position within the plurality of light frequencies (Fig. 12b).

Regarding claims 3 and 16, Sharp teaches the $\frac{1}{2}$ wave plate comprising two superimposed $\frac{1}{4}$ wave plates (col. 16 lines 10-13).

Regarding claims 8-10, 12-13 and 20-22, Sharp teaches the selected wavelength is green light, infrared light or ultraviolet light (Fig. 10a-c).

Regarding claim 15, Sharp in combination with Le Floch teaches the claimed limitation as previously discussed in the rejection of claims 1, 11 and 14 above, but lacks reference to a fast and slow optical axis. The applicant does not clearly state how the $\frac{1}{2}$ wave plate creates a fast and slow optical axis; therefore the examiner considers the fast and slow optical axis to be inherent to the structure of claim 15, which is taught by Sharp. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to define a fast and slow optical axis within the Sharp invention for the purpose of quantifying light scattering by the optical components used in the polarizer.

Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharp in view of Le Floch as applied to claims 1 and 15 respectively above, and further in view of West (US 2,441,049).

Sharp in combination with Le Floch teaches the invention as claimed but lacks reference to combining two retarders to form the $\frac{1}{4}$ wave plate. West teaches that the combination of two

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or more component sheets to sum up to a desired birefringence (col. 3 lines 45-50). The two retarders are considered the same thing as a component sheet and the birefringent sheet is considered to be the same as the $\frac{1}{4}$ wave plate. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use two retarders to form a $\frac{1}{4}$ wave plate as taught by West to form the $\frac{1}{4}$ wave plate taught by Sharp in combination with Le Floch for the purpose of adding adaptability to the polarizer by increasing the ability to target different wavelengths by exchanging different component sheets.

Claims 5-7 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharp in view of Le Floch as applied to claims 1 and 15 above, and further in view of "Polarized Light".

Sharp in combination with Le Floch teaches the invention as claimed but lacks reference to the partial polarizer comprising a plurality of glass plates. "Polarized Light" teaches the use of a polarizer comprising a plurality of plates separated to create multiple air/glass interfaces and inclined at an angle with respect to the optical axis (Fig. 6.3a). "Polarized Light" further teaches the use of two separate sets of glass plates oriented perpendicular to each other and ± 450 with respect to the quarter and half wave plates (Fig. 6.3b). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the partial polarizer of Sharp in combination with Le Floch be comprised of a plurality of plates as taught by "Polarized Light" for the purpose of using the polarizer in the infrared spectrum.

Conclusion

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lesniak (US 6,055,053) teaches the use of a fast and slow optical axis.

Augustyn (US 4,702,603) teaches the use of a quarter wave plate in a polarizer.

Gievers (US 3,692,385) teaches the use of partial polarizers to increase gain.

Schuster (US 6,392,800) teaches a rotating polarizer.

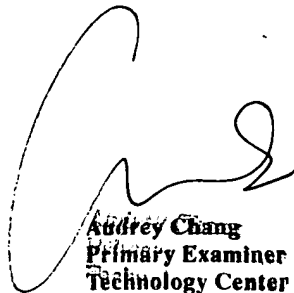
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L Pritchett whose telephone number is 703-305-7917.

The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1687. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JLP
April 16, 2003



Audrey Chang
Primary Examiner
Technology Center 2800